ATC and international cooperation

ir. J. Kamp, ir. F. Engelbart, ir. C. Graumans and ir. M. Valstar
Agricultural Telematics Centre (ATC)
Agro Business Park 58,
6708 PW Wageningen, The Netherlands
Telephone (+31) 8370 79658;
Telefax (+31) 8370 21722

Abstract

The agricultural sector has changed from a production driven to a market driven situation. The farmer is no longer working on an 'island' but is a value adding part of one or more agricultural production chains. A market-based, ecologically sound and sustainable agricultural production requires new information strategies and technologies involving all parts of the chains, including the farmer. The agricultural market is an international market. Therefore, international cooperation in the field of Information and Communication Technology (ICT) is essential to achieve the necessary standardization of data definitions, syntaxes, infrastructure etc. The exchange of knowledge of a wide variety of subjects can speed up the process of innovation, necessary to meet new demands from society and consumers. Also, the exchange of experiences related to the implementation of ICT in practice is considered to be very important.

Keywords: ICT-stimulation, product chains, EDI, standardization

Introduction

ATC

In the Netherlands, the use of information technology in agriculture has been stimulated by the Ministry of Agriculture, Nature Management and Fisheries, and the Farmers' Organization (Landbouwschap). In 1985 five (5) branch organizations, which were very active in this field, were funded. Many projects were started, focusing on:

- standardization of data definitions, calculation rules etc;
- stimulating new applications to be used by farmers (videotex, crop management, development of standard software interfaces between on-farm applications);
- extension of the possibilities of ICT (hardware and software).

In 1992 the branch organizations merged into the Agricultural Telematics Centre (ATC), which not only focuses on the above-mentioned items, but also on data exchange within the agricultural chains. In the board of ATC, organizations of all branches, the Ministry of Agriculture, Nature Management and Fisheries and the agribusiness are represented and support the ATC financially. In this way, the ATC is the one and only organization in the Netherlands that has the status of standardization organization on IT and Telematics in agriculture.

Contents of this paper

In this paper, attention is paid to the importance of international cooperation within agriculture, especially related to ICT (information and communication technology). A short description of projects, in which ATC is participating is given. The aspect of international standardization is also emphasized in this contribution.

International cooperation

Agribusiness is a cross-border business. Developments in the agribusiness lead to an increasing need for international standardization and cooperation concerning the use of ICT. Globalization and growing competition on world markets, growing technical know-how, the need for cost-reduction in the product chain, are the driving factors behind the wish for international collaboration on standardization and exchanging knowledge.

More and more we see product chains develop in which, besides the product itself, information is passed forwards and backwards through the chain, using EDI (Electronic Data Interchange). These product chains (supplier - farmer - industry - distribution - consumer) need to be managed in order to achieve better logistics, consumer-driven production, and cost-reduction. Information is becoming a key factor in the product chains. The need to exchange information leads to the need to standardize data, messages and infrastructure. ATC be-

lieves that it is of interest for all chain organizations involved to work on international standardization.

Another field of interest is the development of standards for software interfaces between on-farm applications (hardware as well as software). The market for, for instance, milking and automatic feeding equipment, tractors and implements, has been internationalized completely. Companies operating in the market feel a great need for (and see large benefits in) the development of standard interfaces between these applications and management information systems.

For this purpose, ATC managed to get the Dutch-developed ADIS syntax (Agricultural Data Interchange Syntax) accepted as an ISO standard. At the moment ATC is also involved in several international projects in which standard messages are developed.

A third important field of international cooperation is the exchange of knowledge and experiences. Organizations in agricultural research are paying more and more attention to knowledge exchange by means of meetings, combined projects and exchange of computer models.

ATC itself is very much interested in the experiences of other countries related to the dissemination of ICT by farmers and advisory services. Critical success factors, new technology, new types of applications, export volumes of software and other experiences are worthwhile to share in order to improve the Dutch ICT stimulation activities.

Standardization

One of the tasks of ATC is to develop agricultural standards (EDI-syntax, national standardized data elements, standard messages, information models, calculation rules, etc.), to maintain them and to distribute them to all agricultural organizations that want to use these standards.

ATC participates in the following international developments:

Edifact

Organization
Recognizing the uncoordinated growth of EDI and (non-)standards development in North America, Europe and further afield, the Working Party on Trade Facilities of the United Nations Economic Commission for Europe (UN/ECE WP4) has set up the international Edifact organization to coordinate the development of EDI using the Edifact standards. The development of UN standard EDI-messages (UNSMs) is done by the international Message Development groups (MD) for the different areas. There is not yet an MD for agriculture. ATC seeks to establish one.

Standards
The Edifact organization has defined and (is still extending) the following standards:
- the Edifact syntax: published in 1988 as ISO standard no. 9735;
- the list of data elements for EDI (Edifact Data Elements Directory: EDED. The EDED is a part of the Trade Data Elements Directory (TDED) which is published as ISO-standard;
- the list of segments: logical groups of data;
- the list of UN standard messages: UNSMs.

All these parts together are published under the name Trade Data Interchange Directory (TDID). This UNTDID enables the world to use an international standard set of documents for implementation of EDI. In western Europe the ISO standards (Edifact syntax and TDED) are also accepted by CEN as a European standard.

Edifact is the international standard in the field of EDI and has an enormous number of users which is still growing world-wide. The only problem is the lack of agricultural standards in this huge set of standards with respect to data elements, segments and messages. Present standards "only" reflect the developments in the fields of trade, transport, automotive production, chemistry, etc. However, especially in the field of administrative procedures such as orders, invoices, catalogue information, etc. a solid basis is available which can be used for defining specific agricultural subsets.

Agro EDI Europe

EDI does not end at the countries' borders. Therefore international cooperation with respect to agricultural EDI is becoming more and more necessary. In 1992 the French cooperations (CFCA, ANR and UNCAA) and in 1993 the Agricultural Telematics Centre initiated the foundation of an international platform on EDI in agriculture: Agro EDI Europe. The goal of Agro EDI Europe was to increase awareness of the possibilities of EDI for agricultural purposes and to coordinate agricultural EDI-activities at a European level.

To increase awareness consists of for example information (brochures, leaflets, etc.), inquiries into the use of agricultural EDI in Europe, (inter)national meetings and contacts with other branches such as transport, chemistry, banks, etc..

Coordination consists of for example the foundation of international working groups (standard codings, data elements, interchange agreements, pilot projects, etc.) and also foundation of a message development group in the Edifact organization.

The Agro EDI Europe initiative is supported by the EU. As a partner in Agro EDI Europe, ATC coordinates the recruitment of new partners (in other countries) and tries to list EDI developments in the different EU-countries.

Computer Integrated Agriculture

In 1992 ATC became involved in this project, which focuses on the optimization of information supply and exchange within the pig and potato chain. It is a joint project of Landdata (Germany), LEC and DAAC (Denmark), LHAgro (Denmark) and Wageningen Agricultural University (Dept. of Agrotechnics & Physics) and ATC (The Netherlands). In this 3-year-project ATC focuses on the standardization aspect of especially the pig chain. Based on these standards an integrated information system prototype, in-
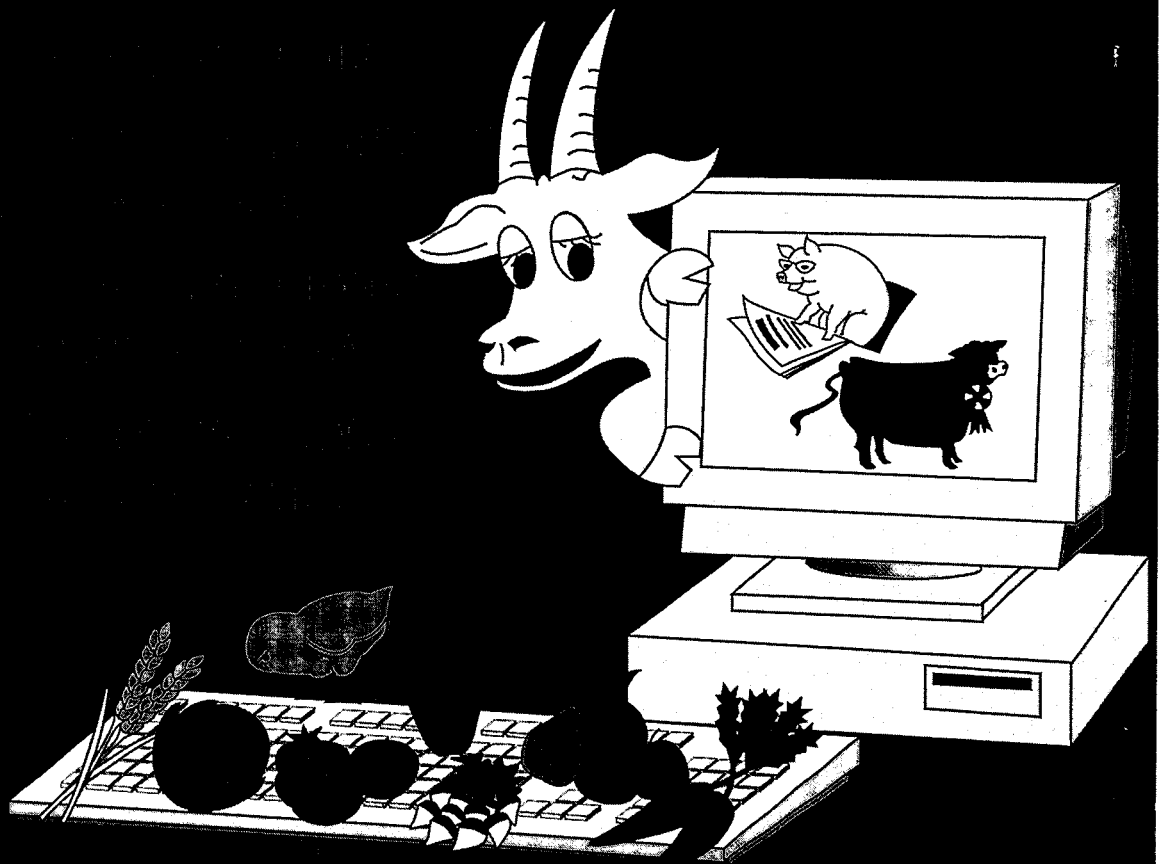
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cluding extensive data communication options, has been developed by the Danish and German partners. Many of the standardization results are inputs for ISO commissions and working groups.

ICT experiences

As mentioned previously, ATC is interested in experiences and development in the field of ICT in other countries. Besides Europe, also the USA and Australia show interesting developments. In Europe several initiatives have been taken to improve this exchange:

Farmsoft catalogue

In 1991 the first Farmsoft catalogue was presented, followed by an improved version in 1994. This international catalogue is the result of a joint effort by a working group of ATC and STOAS, 6 other European countries and Israel. The ultimate objective of the catalogue was to promote cooperation in the various areas of ICT in agriculture. The catalogue contains:

- a short description of ICT developments in the participating countries;
- compact description of software application (1 page each), developed for farmers and/or advisors. In total 164 applications from 13 countries are presented;
- several indexes to improve the accessibility of the information.

The catalogue shows that countries such as Germany, France and Israel are quite successful in the export of software, compared with other countries, including the Netherlands. As far as the penetration of PCs and software at farm level is concerned, the Netherlands scores quite high.

We hope that this catalogue, which can be ordered from ATC, will be a stimulus for agricultural software houses to look across the borders of the Netherlands, either to make use of international developments (as someone once stated: developing is 90% stealing, and only 10% creativity), or to sell their own product.

ENITA

ENITA stands for "European Network for Information Technology in Agriculture". The ultimate goal of this project was creating a network of people in Europe to exchange knowledge and experiences with ICT. The project identifies about 10 fields of interests. In each field a group of about 5-8 people share experiences and present their results to a larger audience. One of the results may be the identification of "white spots" (or 'black holes') in the knowledge, possibly resulting in new proposals for projects. A few of the subjects are:

- experiences with standardization (successes, problems, effects on ICT uptake, etc.);
- knowledge intensive systems;
- methodological aspect of describing the market for agricultural software;
- conditions for optimal dissemination of software;
- application of ICT in southern and eastern Europe.

ENITA also aims at funding a European Society for ICT in Agriculture (a European "VIAS"). This association will take the initiative to improve the exchange of knowledge and experiences by organizing workshops, congresses and an international journal.

The project will be funded by the EU and will probably start by the end of 1994.

International congress on ICT in agriculture

Every two years, an international congress is organized by France (SAF), Germany (DLG) and Great Britain (RASE). The last one was held in Cambridge (June 1994) and visited by 150 participants from over 40 countries. A great variety of papers was presented varying from fundamental research on meteorology to practical application on hand-held computers. These congresses are a good way to learn more about new developments all over the world. Many contacts were made. Both ENITA and the Farmsoft catalogue were introduced here.

Discussions about the next meeting led to the suggestion that perhaps the Netherlands could be the next organizing country. Considering the leading position of the Netherlands in the field of ICT and the close relation with the ENITA subgroup for the international association, the feasibility of this idea could be worked out by VIAS.

Conclusions

In the future international cooperation is getting more and more essential. At the moment the EU is formulating priorities for the 4th Framework (1995-1999) in the field of Information and Communication Technology. Within this Framework, budgets will be available to stimulate international cooperation to achieve a "sustainable" agriculture. Hopefully, the 4th Framework will bring more cooperation in Europe and lead to better applications for, and continuity of, the individual farm. The farmer, being part of a chain, will have to provide a food quality product which meets the consumer's wishes. Information and Communication Technology is a bare essential to achieve this.